

Claims:

1-7. (Canceled)

8. (Previously Presented) A composite comprising a plurality of agglomerated nanocrystalline particles including a porous first material impregnated with a second material, said first material selected from the group consisting of MgO, CeO₂, AgO, SrO, BaO, CaO, FeO, V₂O₃, V₂O₅, Mn₂O₃, Fe₂O₃, NiO, CuO, ZnO, SiO₂, Ag₂O, Al₂O₃ and combinations thereof, and said second material selected from the group consisting of Ag, Hg, Sn, Ga, In, cations thereof, and oxides thereof, said composite retaining at least about 25% of the total pore volume of said first material prior to agglomeration thereof.

9. (Canceled)

10. (Original) The composite of claim 8, said second material being a soft Lewis acid.

11. (Canceled)

12. (Previously Presented) The composite of claim 8, said first material having a pore volume of at least about 0.3 cm³/g and an average pore opening size of at least about 4 nm.

13. (Previously Presented) The composite of claim 12, said pore volume being at least about 0.8 cm³/g and said pore opening size being at least 8 nm.

14. (Previously Presented) The composite of claim 8, said first material having a surface area of at least about 100 m²/g.

15. (Canceled)

16. (Original) The composite of claim 8, said composite being in the form of extruded pellets.

17. (Previously Presented) A composite comprising a plurality of agglomerated nanocrystalline particles, said particles consisting of a member selected from the group consisting of Ga_2O_3 , In_2O_3 , SnO , and $\text{Ga}_2\text{O}_3 \cdot \text{In}_2\text{O}_3$, and having an average particle size between about 3-30 nm, said composite retaining at least about 25% of the total pore volume of said particles prior to agglomeration thereof.

18. (Previously Presented) The composite of claim 17, said particles having a surface area between about 30-700 m^2/g prior to agglomeration thereof.

19. (Previously Presented) The composite of claim 17, said particles having a pore volume of at least about 0.2 cm^3/g and an average pore opening size of at least about 4 nm prior to agglomeration thereof.

20-22. (Canceled)

23. (Previously Presented) The composite of claim 17, said composite being in the form of extruded pellets.

24-42. (Cancelled)

43-46. (Canceled)

47. (Previously Presented) A composite comprising a plurality of agglomerated nanocrystalline particles including a porous first material impregnated with a second material, said

particles having an average crystallite size of less than about 15 nm, said first material selected from the group consisting of MgO, CeO₂, AgO, SrO, BaO, CaO, FeO, V₂O₃, V₂O₅, Mn₂O₃, Fe₂O₃, NiO, CuO, Al₂O₃, ZnO, SiO₂, Ag₂O, and combinations thereof, and said second material selected from the group consisting of Ag, Hg, Au, Sn, Ga, In, Pt, cations thereof, and oxides thereof, said composite retaining at least about 25% of the total pore volume of said particles prior to agglomeration thereof.

48. (Canceled)

49. (Previously Presented) The composite of claim 47, said first material having a pore volume of at least about 0.3 cm³/g and an average pore opening size of at least about 4 nm.

50. (Canceled)

51. (Previously Presented) The composite of claim 47, said composite being in the form of extruded pellets.

52. (New) A composite comprising a plurality of agglomerated nanocrystalline particles including a porous first material impregnated with a second material, said first material selected from the group consisting of metal hydroxides, MgO, CeO₂, AgO, SrO, BaO, CaO, FeO, V₂O₃, V₂O₅, Mn₂O₃, Fe₂O₃, NiO, CuO, ZnO, SiO₂, Ag₂O, Al₂O₃ and combinations thereof, and said second material selected from the group consisting of Ag, Hg, Sn, Ga, In, cations thereof, and oxides thereof, said composite retaining at least about 25% of the total pore volume of said first material prior to agglomeration thereof.

53. (New) The composite of claim 52, said second material being a soft Lewis acid.

54. (New) The composite of claim 52, said first material having a pore volume of at least about $0.3 \text{ cm}^3/\text{g}$ and an average pore opening size of at least about 4 nm.

55. (New) The composite of claim 54, said pore volume being at least about $0.8 \text{ cm}^3/\text{g}$ and said pore opening size being at least 8 nm.

56. (New) The composite of claim 52, said first material having a surface area of at least about $100 \text{ m}^2/\text{g}$.

57. (New) The composite of claim 52, said composite being in the form of extruded pellets.

58. (New) The composite of claim 52, said particles having an average crystallite size of less than about 15 nm.

59. (New) A composite comprising a plurality of agglomerated nanocrystalline particles including a porous first material impregnated with a second material, said first material selected from the group consisting of oxides and hydroxides of Mg, Ce, Ag, Sr, Ba, Ca, Fe, V, Mn, Fe, Ni, Cu, Zn, Si, Al, and combinations thereof, and said second material selected from the group consisting of Ag, Hg, Au, Sn, Ga, In, Pt, cations thereof, and oxides thereof, said composite retaining at least about 25% of the total pore volume of said particles prior to agglomeration thereof.

60. (New) The composite of claim 59, said second material being a soft Lewis acid.

61. (New) The composite of claim 59, said first material having a pore volume of at least about $0.3 \text{ cm}^3/\text{g}$ and an average pore opening size of at least about 4 nm.

62. (New) The composite of claim 61, said pore volume being at least about 0.8 cm³/g and said pore opening size being at least 8 nm.

63. (New) The composite of claim 59, said first material having a surface area of at least about 100 m²/g.

64. (New) The composite of claim 59, said composite being in the form of extruded pellets.

65. (New) The composite of claim 59, said particles having an average crystallite size of less than about 15 nm.